Food and Agriculture Organization of the United Nations

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64th Myanmar Medical Conference
Symposium on
"Antimicrobial Resistance: A Global Problem that needs to urgent attention"

Antimicrobial Resistance in Livestock Sector

20 January 2018,
Myanmar Medical Association
Yangon

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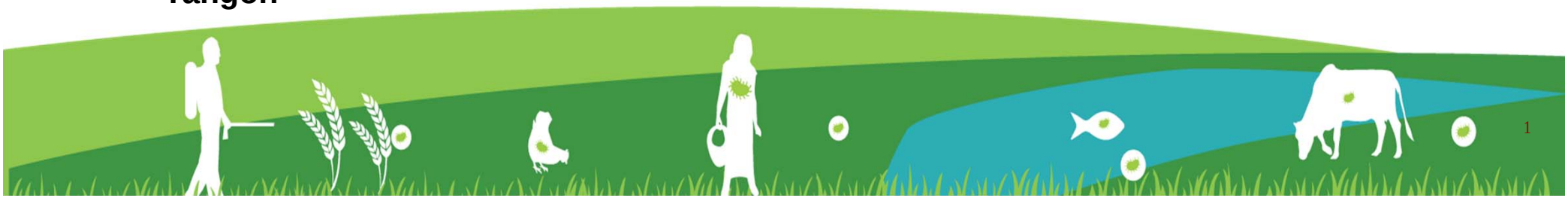

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- **WHAT ARE WE DOING?**
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  - **National livestock AMU & AMR control plan of Myanmar 2017-2020 (draft)**
- **CHALLENGES**

Antimicrobials – use in agriculture

Antimicrobials

- Are agents that kill microorganisms and parasites, or stop their growth
- Include antibacterials (antibiotics), antifungals, antivirals, antiparasitics, antimicrobial pesticides

Antibiotics

- Play an important role for disease treatment in food-producing animals (e.g. poultry, pigs, cattle, fish)
- Sometimes are used to prevent disease or promote production.

Antibiotic consumption

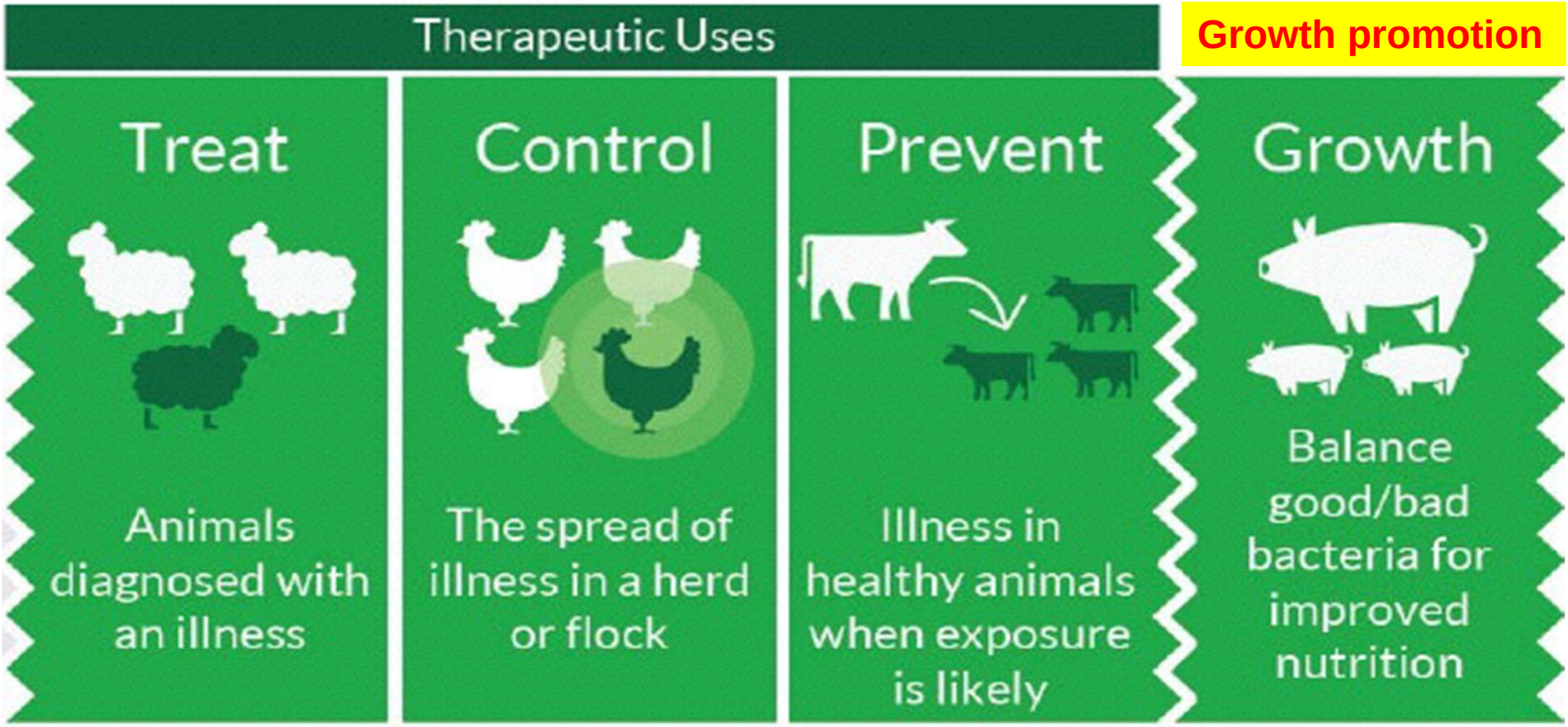
- Just **89 countries** report having a system to collect data on antimicrobial agents use in animals (OIE, 2015)

- Antibiotic consumption in global agriculture
  - ranges from around **63,000 to over 240,000 tonnes/yr.**
  - **livestock sector run over 60,000 tonnes/yr.**

Antimicrobials – use in livestock

Antimicrobials are added in low concentration to feed as a way to stimulate growth

Growth promotion



http://www.4starvets.com/2015/09/fda-guidance-209213/

Antimicrobial - use in livestock

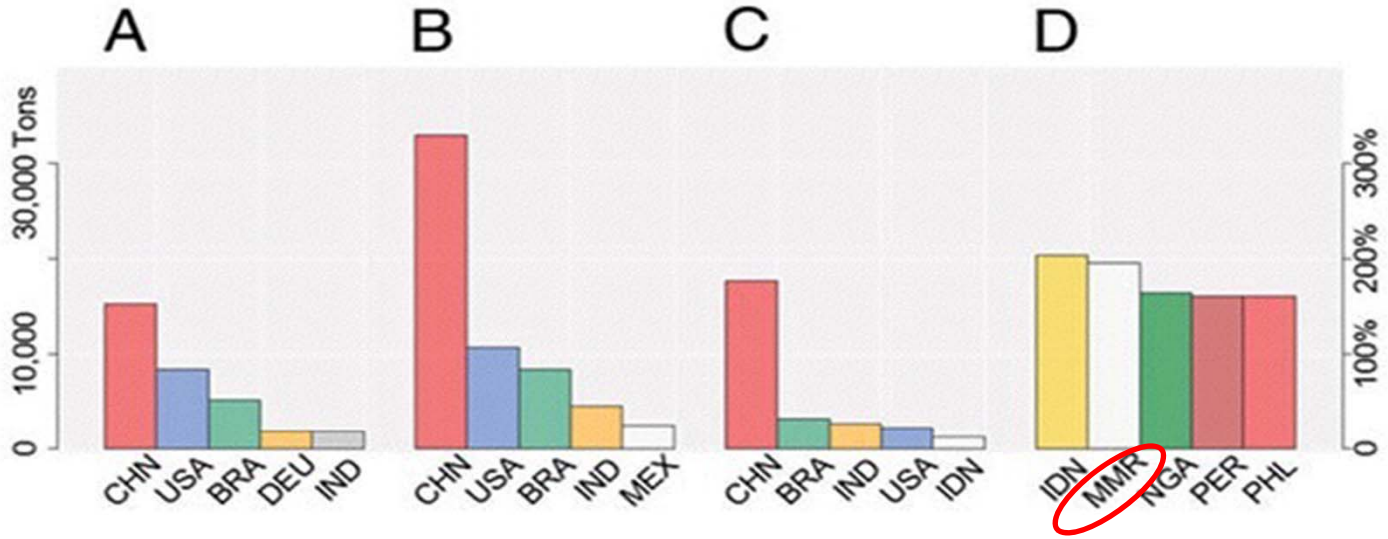


Fig. 1. (*A*) Largest five consumers of antimicrobials in livestock in 2010. (*B*) Largest five consumers of antimicrobials in livestock in 2030 (projected). (*C*) Largest Increase in antimicrobial consumption between 2010 and 2030. (*D*) Largest relative increase in antimicrobial consumption between 2010 and 2030. CHN, China; USA, United States; BRA, Brazil; DEU, Germany; IND, India; MEX, Mexico; IDN, Indonesia; MMR, Myanmar; NGA, Nigeria; PER, Peru; PHL, Philippines.

Between 2010 and 2013 global consumption of Antimicrobials will increase by 67%, from 63,151 ± 1,560 tons to 105,596 ± 3,605 tons.

Van Boeckel et al. 2015; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4426470

Global trends in antimicrobial use in food animals

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RESULTS

Go to:

Overall Antimicrobial Consumption Trends. Global consumption of antimicrobials in food animal production was estimated at 63,151 (±1,560) tons in 2010 and is projected to rise by 67%, to 105,596 (±3,605) tons, by 2030. Two thirds (66%) of the global increase (67%) in antimicrobial consumption is due 51,851 tons, representing 82% of the current global antimicrobial consumption in food animals in 2010.

In 2010, the five countries with the largest shares of global antimicrobial consumption in food animal production were China (23%), the United States (13%), Brazil (9%), India (3%), and Germany (3%) (Fig. 1). By 2030, this ranking is projected to be China (30%), the United States (10%), Brazil (8%), India (4%), and Mexico (2%). Among the 50 countries with the largest amounts of antimicrobials used in livestock in 2010, the five countries with the greatest projected percentage increases in antimicrobial consumption by 2030 are likely to be Myanmar (205%), Indonesia (202%), Nigeria (163%), Peru (160%), and Vietnam (157%). China and Brazil are among the largest consumers of antimicrobials currently but are not the countries with the most rapid projected increases in antimicrobial consumption. This indicates that these two countries have already initiated a shift toward more intensified livestock production systems using antimicrobials to maintain animal health and increase productivity. Antimicrobial consumption for animals in the BRICS countries is expected to grow by 99% by 2030, whereas their human populations are only expected to grow by 13% over the same period (20).

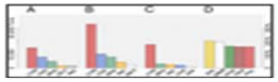
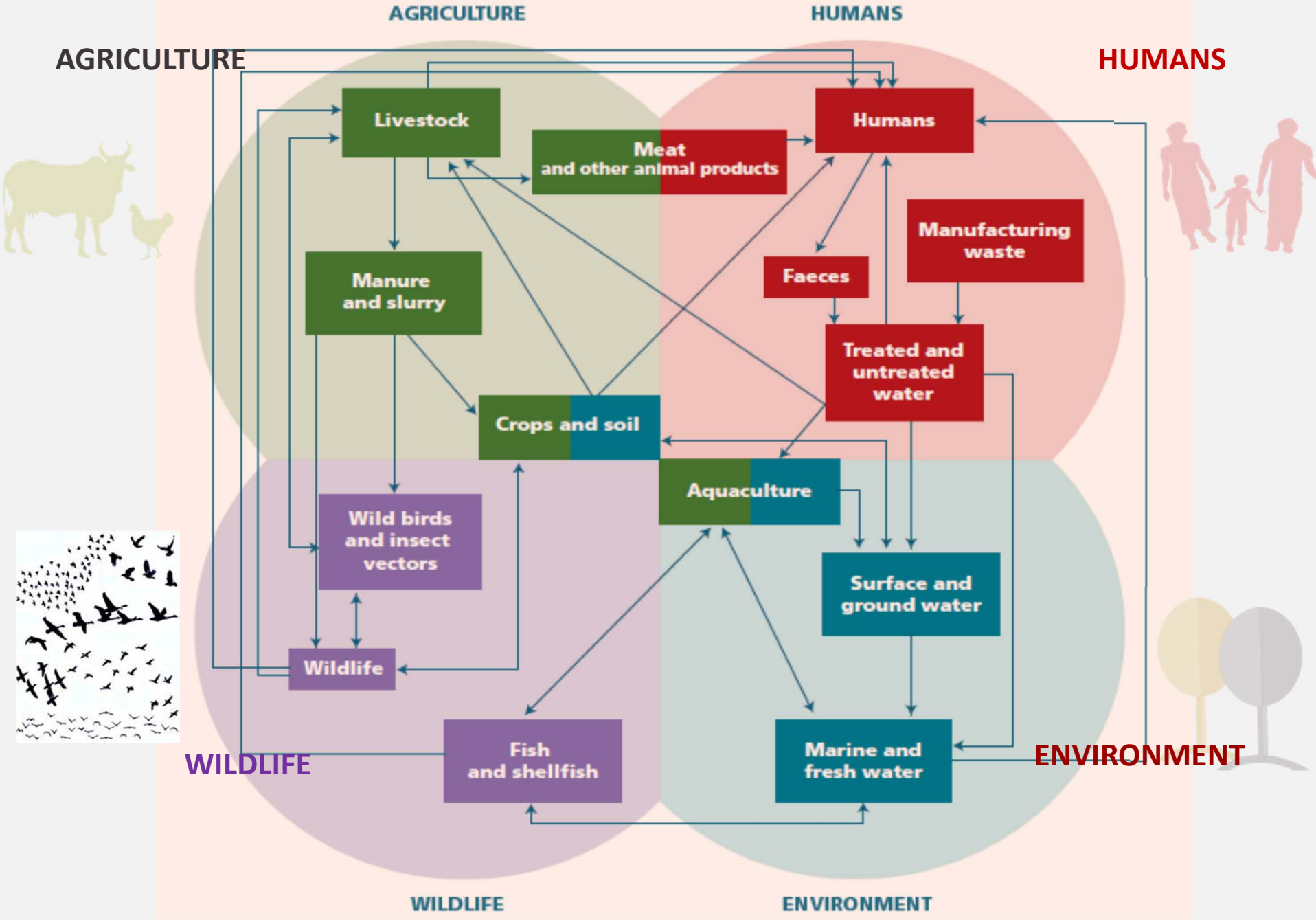


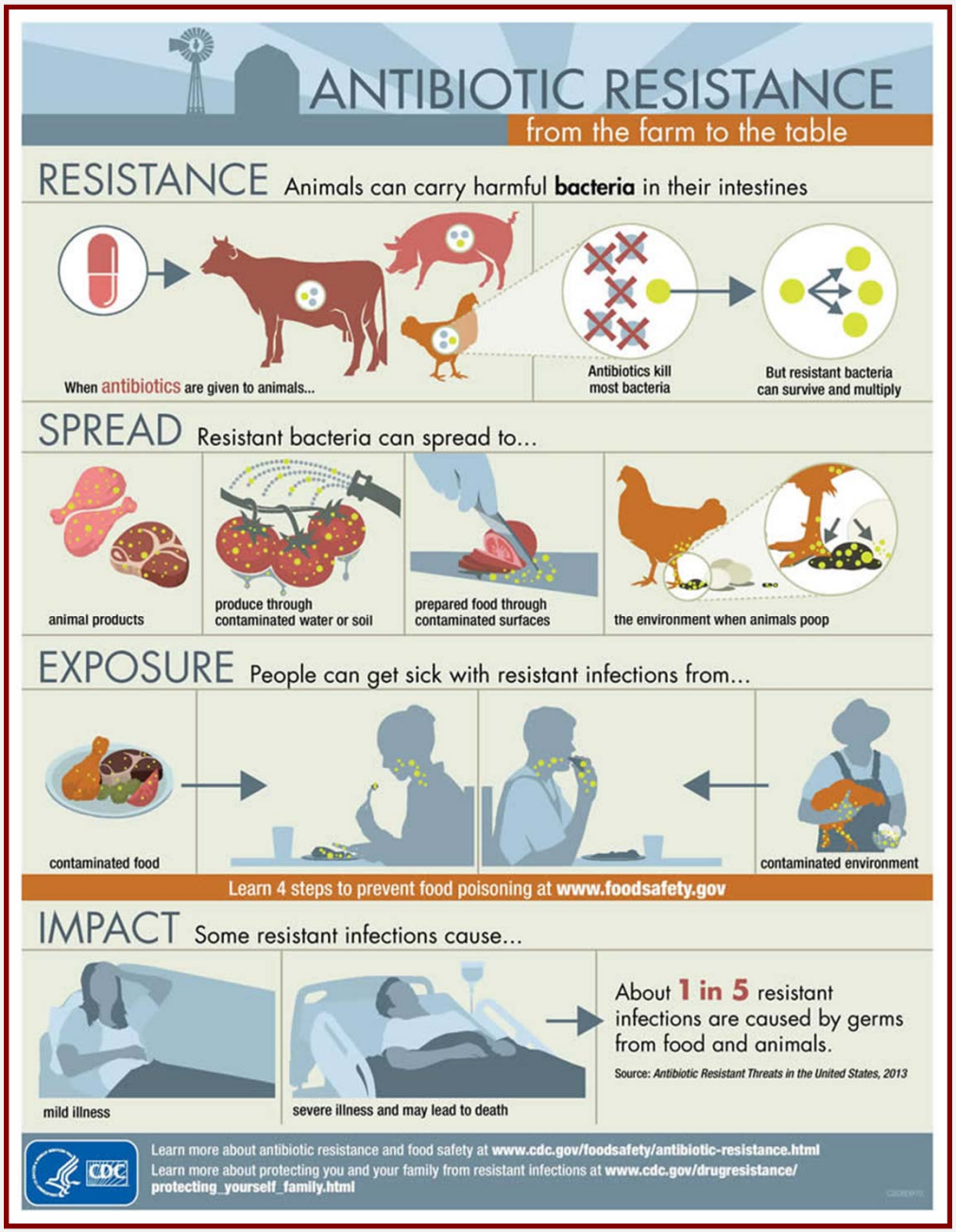
Fig. 1.

(*A*) Largest five consumers of antimicrobials in livestock in 2010. (*B*) Largest five consumers of antimicrobials in livestock in 2030 (projected). (*C*) Largest Increase in antimicrobial consumption between 2010 and 2030. (*D*) Largest relative increase in ...

AMR at the human-animal-environment interface

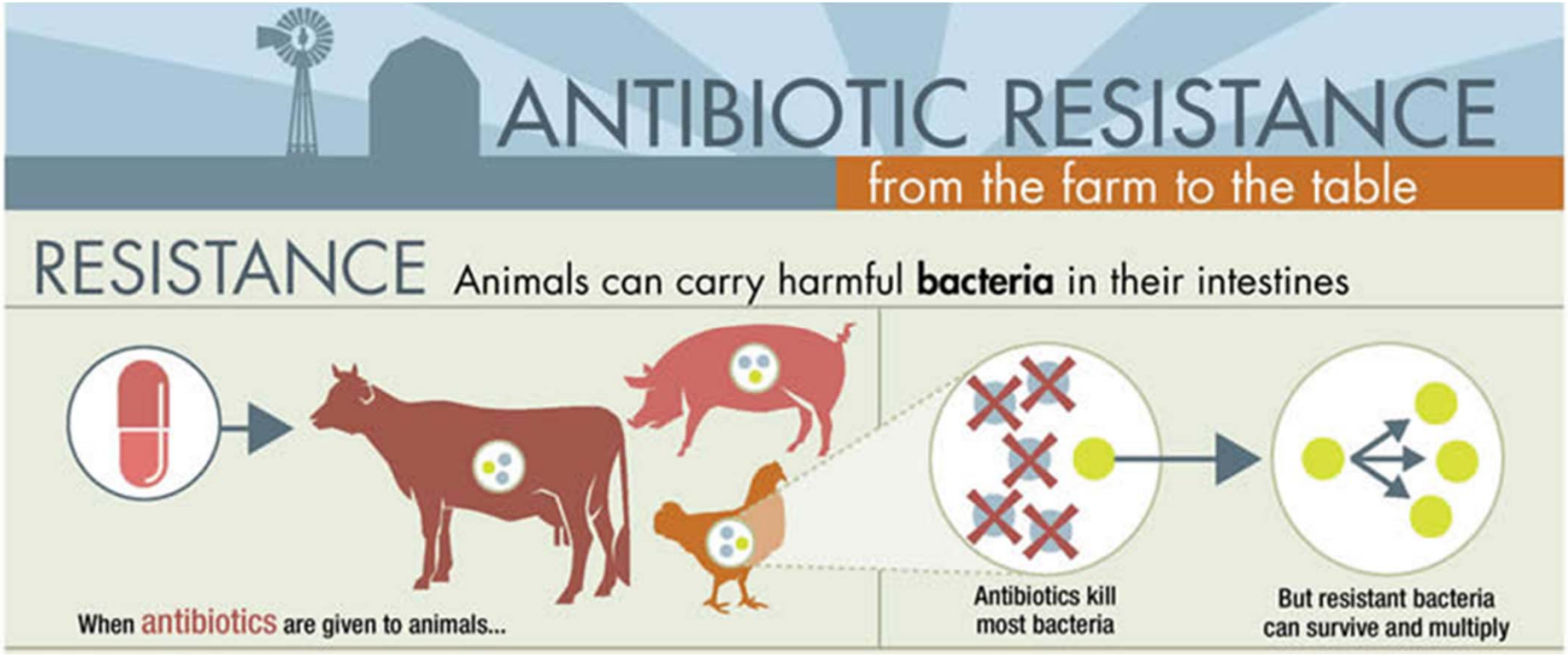


How antibiotic resistance can spread through the food chain:

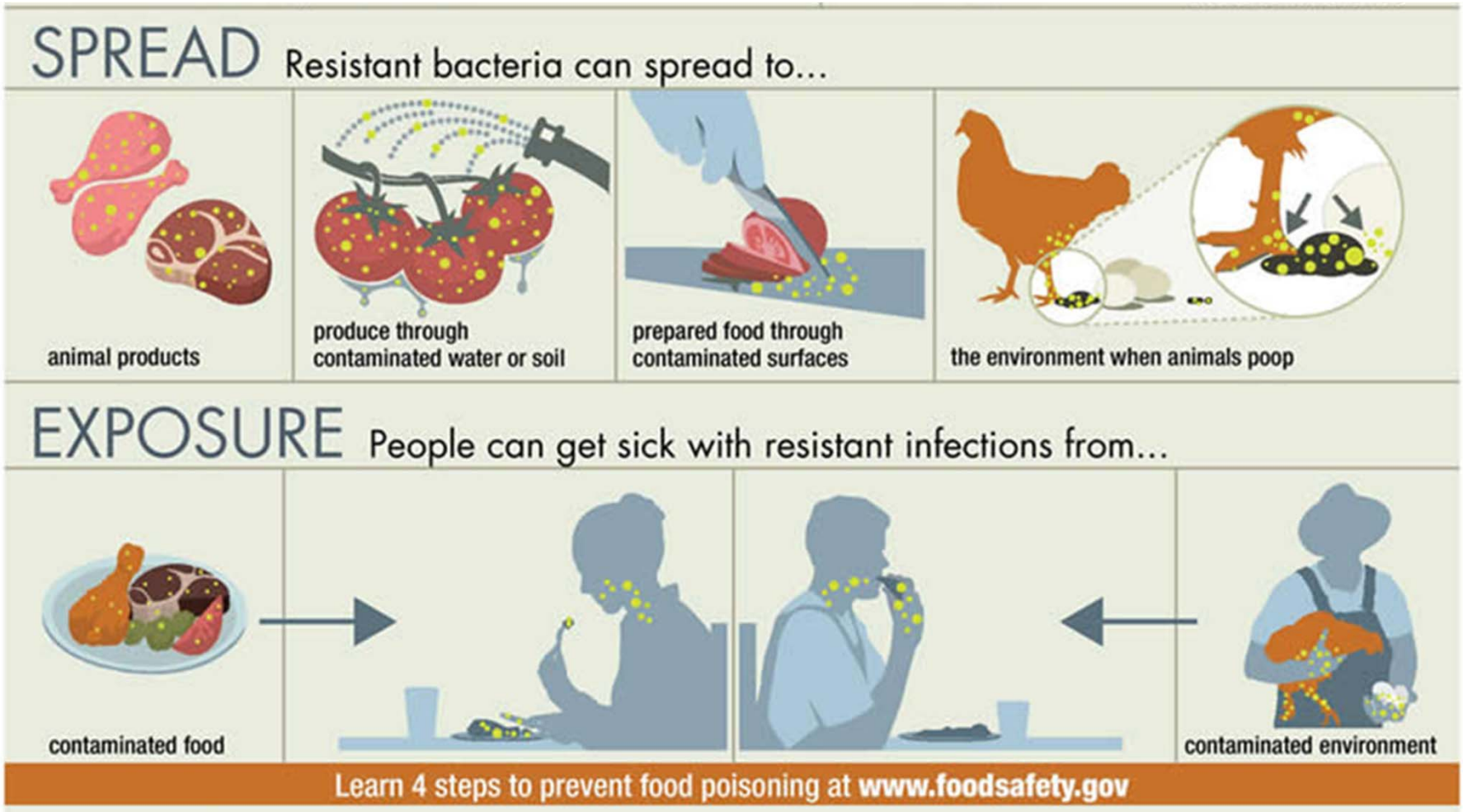


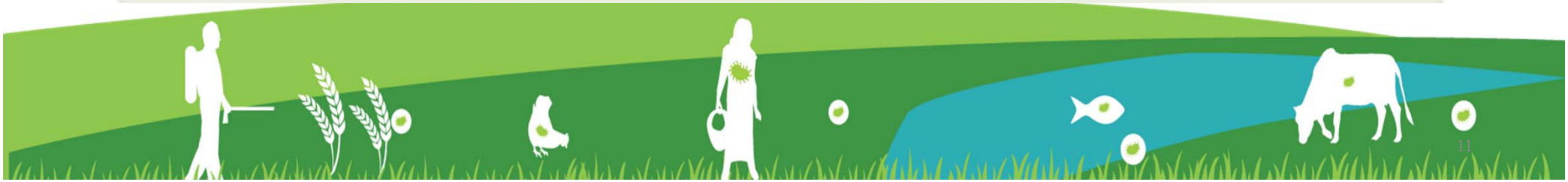
https://www.cdc.gov/drugresistance/protecting_food-supply.html

How antibiotic resistance can spread through the food chain: RESISTANCE

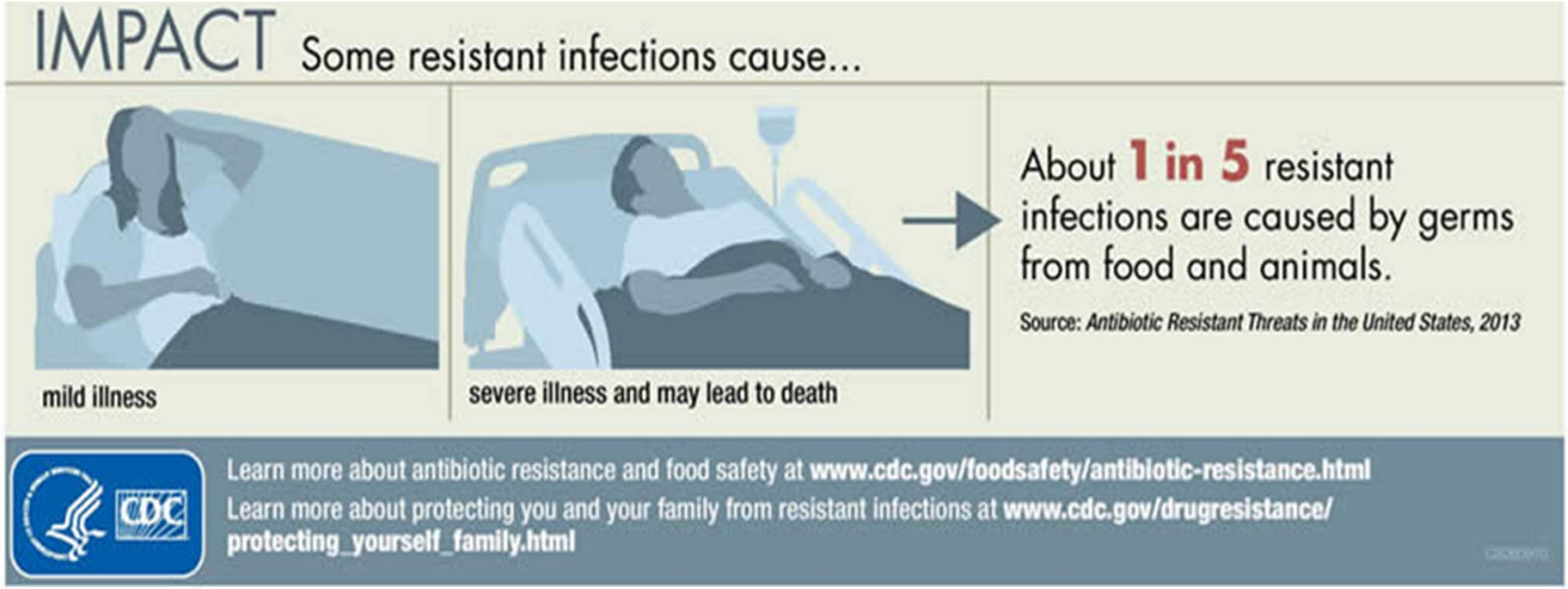


How antibiotic resistance can spread through the food chain: SPREAD AND EXPOSURE





How antibiotic resistance can spread through the food chain: IMPACT



https://www.cdc.gov/drugresistance/protecting_food-supply.html

AMR – risk to agriculture and food security

- Animal diseases can have major impacts on food production, food security and farmers' livelihood
- AMR increases those risks
- Various factors are at play;
  - lack of regulation and oversight of use
  - lack of awareness in best practices that leads to excessive or inappropriate use
  - the use of antibiotics not as medicines but as growth promoters in animals
  - available over-the-counter

The FAO-OIE-WHO Collaboration

Sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces

A Tripartite Concept Note

April 2010

- FAO-OIE-WHO have been working together for years to address risks at the human-animal-ecosystems interface.
- Their collaborative work was formally laid down in 2010 in the FAO/OIE/WHO Tripartite Concept Note.
- Concentrated three main technical topics,
  - **AMR**
  - **Rabies**
  - **Zoonotic influenza**

The Tripartite: FAO-OIE-WHO Collaboration

Food and Agriculture Organization of the United Nations

Global leader for food and agriculture

WORLD ORGANISATION FOR ANIMAL HEALTH

Global leader for animal health & welfare standards

World Health Organization

Global leader for human health

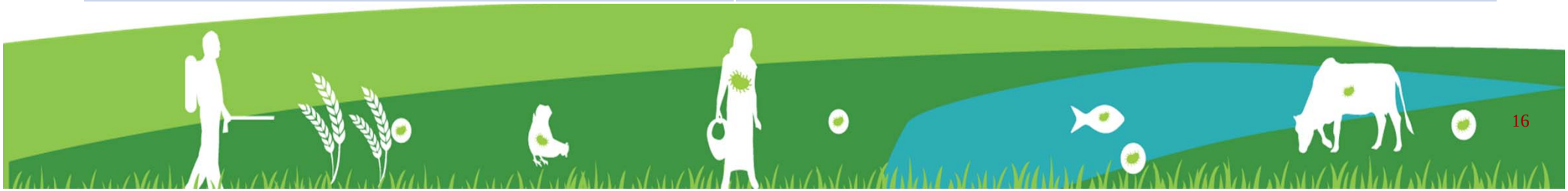
Joint priorities including on AMR

- WHO Global Action Plan: developed in close collaboration with FAO & OIE
- National Action Plan (NAP) support
  - Manual for developing NAP
  - Checklist to be used to assist with the development of NAP
  - Country pilot project
- Communication tools
  - Joint media statement
  - Antibiotic awareness week
  - Common trainings and presentations

WHO, FAO, and OIE unite in the fight against AMR

WHO/FAO/OIE will:

- Raise awareness;
- Strengthen national capacities;
- Support policy, institutional and regulatory frameworks and networks;
- Support AMR surveillance and usage monitoring;
- Promote R & D;
- Support fight against poor quality or counterfeit products;
- Promote prevention and control that reduces antimicrobial use.



The FAO action plan on AMR and four focus areas

FOCUS AREA 1

IMPROVE AWARENESS ON ANTIMICROBIAL RESISTANCE AND RELATED THREATS

AWARENESS

FOCUS AREA 2

DEVELOP CAPACITY FOR SURVEILLANCE AND MONITORING OF ANTIMICROBIAL RESISTANCE AND ANTIMICROBIAL USE IN FOOD AND AGRICULTURE

EVIDENCE

FOCUS AREA 3

STRENGTHEN GOVERNANCE RELATED TO ANTIMICROBIAL USE AND ANTIMICROBIAL RESISTANCE IN FOOD AND AGRICULTURE

GOVERNANCE

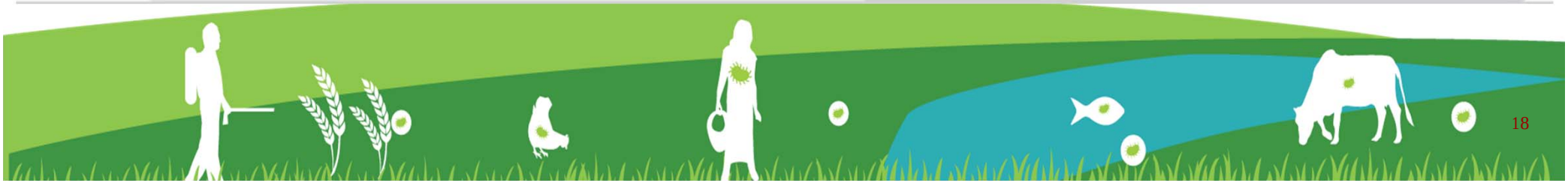
FOCUS AREA 4

PROMOTE GOOD PRACTICES IN FOOD AND AGRICULTURE SYSTEMS AND THE PRUDENT USE OF ANTIMICROBIALS

PRACTICES

FAO focus areas and objectives of global action plan on AMR

FAO ACTION PLAN FOCUS AREAS		GLOBAL ACTION PLAN OBJECTIVES
AWARENESS	GOVERNANCE	1 Information, education and training
EVIDENCE	GOVERNANCE	2 Surveillance, monitoring, record-keeping
PRACTICES	GOVERNANCE	3 Reduction of infection
PRACTICES	GOVERNANCE	4 Legislation, optimization of use
PRACTICES	GOVERNANCE	5 Sustainable investment for alternatives and reduced use



Expert recommendations on AMR in Myanmar (1)


Prof Jaap at vet drug shop (Jan/Feb 2017)

Recommendations

- Secure resources (financial and personnel) at the LBVD,
- Collect the scarce data on resistance available in the veterinary diagnostic lab,
- Start a monitoring and surveillance programme for AMU, AMR and residues and
- Establish contact with large producers and include them in discussions.

Expert recommendations on AMR in Myanmar (2)


ATLASS mission at YVDL in Mar 2017

Recommendations

- Strengthen the resource capacity particularly relevant to generating and using quantitative data for AMR surveillance,
- Enhance technical practices on bacteriology and AST
- Improve AMR data management and
- Establish and improve networks and linkages.

ATLASS-
Assessment **T**ool for the **L**ab and **A**MR **S**urveillance **S**ystem

Improve awareness on AMR & biosecurity practices

Public awareness on AMR at Yangon PPZ

Workshop on biosecurity practices

Layer farm- battery cages, close house

Layer farm- slatted floor, open house

2017 antibiotic awareness week storytelling/photo essay contest organized by FAO

- Theme: "**Good Practice Towards Infection Freedom**"
- Objectives:
  - raise AMR awareness
  - promote good farm production practices
- Level: Country and Regional (Asia & the Pacific)
- Period: 4 Sep to 13 Oct 2017
- Entrances were invited through LBVD, DOF, UVS
- The following three entries were positioned as 1st, 2nd and 3rd :
  - ***Proper vaccination for prevention and for reducing antibiotic use (Vaccination)***
  - ***Probiotic, alternative to antibiotics (Probiotic)***
  - ***Adopt good husbandry practices for freedom from diseases (GHP)***

Ceremony for awarding prizes to the 2017 AMR awareness competition winners

DG of LBVD presenting the 1st Prize winner

CTL of ECTAD Myanmar presenting the 2nd Prize winner

Proper Vaccination for Prevention

and

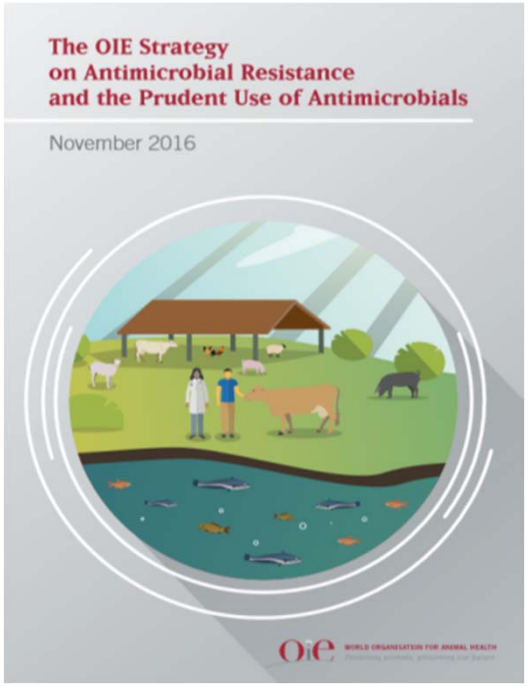
For Reducing Antibiotic Use

A poultry veterinarian (Dr. Aung Myint Tun) visited to a commercial broiler farm from Yezin, Nay Pyi Taw on 12th October 2017 for providing veterinary services. Mr. Khant Nyar Aung, A final year student in the Bachelor of Veterinary Science (BVSc) course of University of Veterinary Science, accompanied with him as internship training. They vaccinated meat type chickens against Newcastle Disease (ND) and Infectious Bronchitis (IB) by using live ND+IB combined vaccine via eye-drop administration. During vaccination, they discuss about the advantages of preventive vaccination in poultry

1st Price entry competed by Prof Ye Htut Aung of UVS

OIE Strategy on AMR and the Prudent Use of Antimicrobials

This OIE Strategy supports the objectives established in the Global Action Plan, and reflects the mandate of the OIE through **four main objectives:**



http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/PortailAMR/EN_OIE-AMRstrategy.pdf

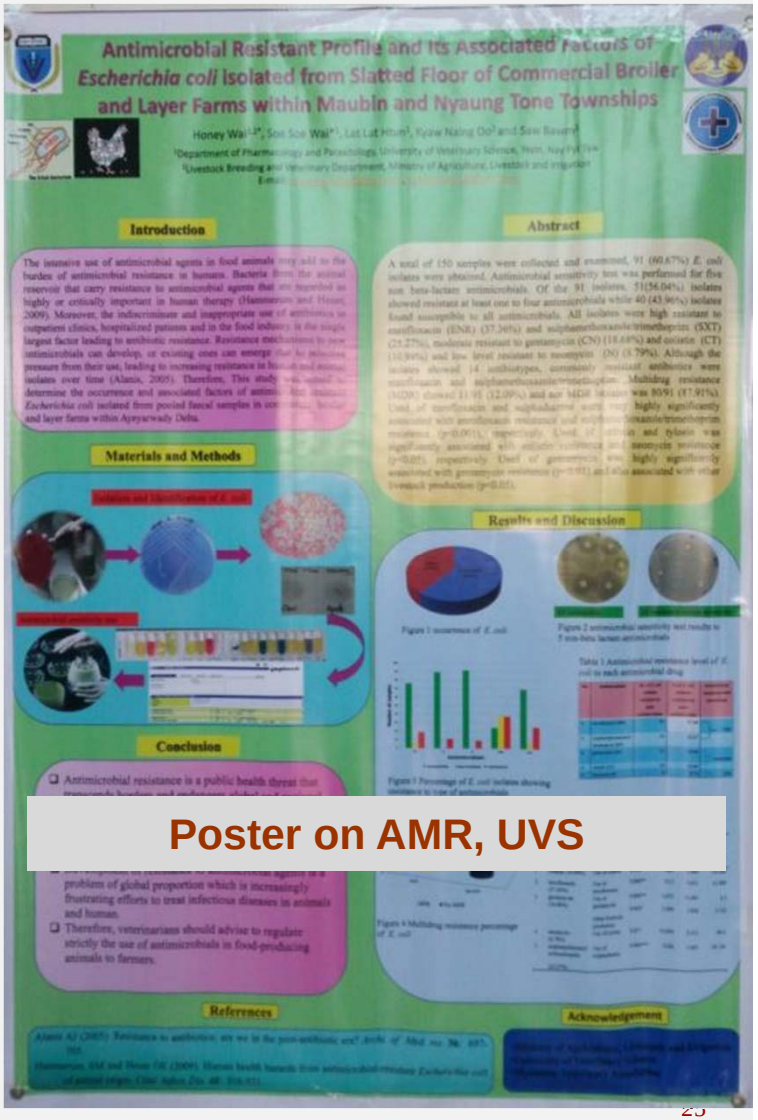
- Improve awareness and understanding
- Strengthen knowledge through surveillance and research
- Support good governance and capacity building
- Encourage implementation of international standards

Information Seminar for Practicing Vets: Combatting AMR jointly organized by Myanmar Veterinary Association (MVA) and OIE

Dr Pennapa, OIE

Dr Theingi Tin, MoHS

Panel discussion

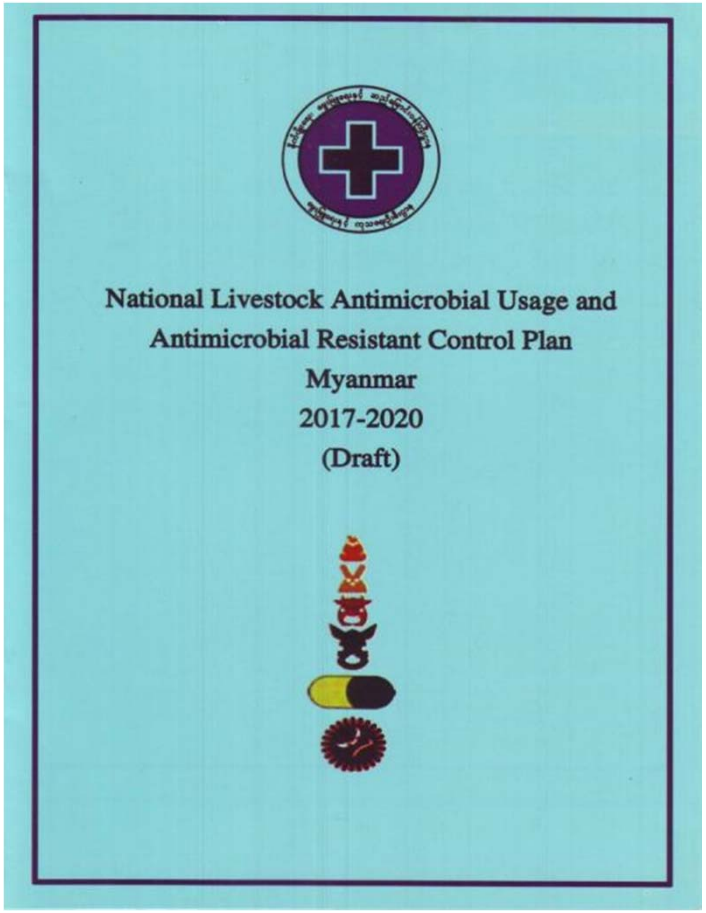


Poster on AMR, UVS

Animal Health

- **Adopt sound husbandry practices** (biosecurity, hygiene & vaccination protocols).
- **Ensure antimicrobials are used on prescription** after diagnostic & under supervision by a veterinarian.
- **Use only high quality antimicrobials** manufactured according to OIE international standards and sole only by authorised distributors.
- **Handle antimicrobials prudently and responsibly** by respecting the dosage directions and professional advice.
- **Veterinarians should keep their knowledge up to date** and raise awareness about antimicrobial resistance.

National livestock AMU & AMR control plan of Myanmar 2017-2020 (draft) by LBVD



Key activities:

a. awareness and educational programmes,
b. surveillance & monitoring works,
c. good husbandry practices and control infectious diseases,
d. rules, regulations and directives controlling AMR and
e. sustainable strategy for reducing antibiotics.

Evidence-based research surveillance of AMR

An Integrated management-based approach for surveillance and control of zoonoses in emerging livestock systems (ZELS) 2015-2020

- *Salmonella*
- *Streptococcus suis*
- *E.coli*

➢ Antimicrobial resistance

Along the swine supply chain (stable to table)

Farm

Abattoir

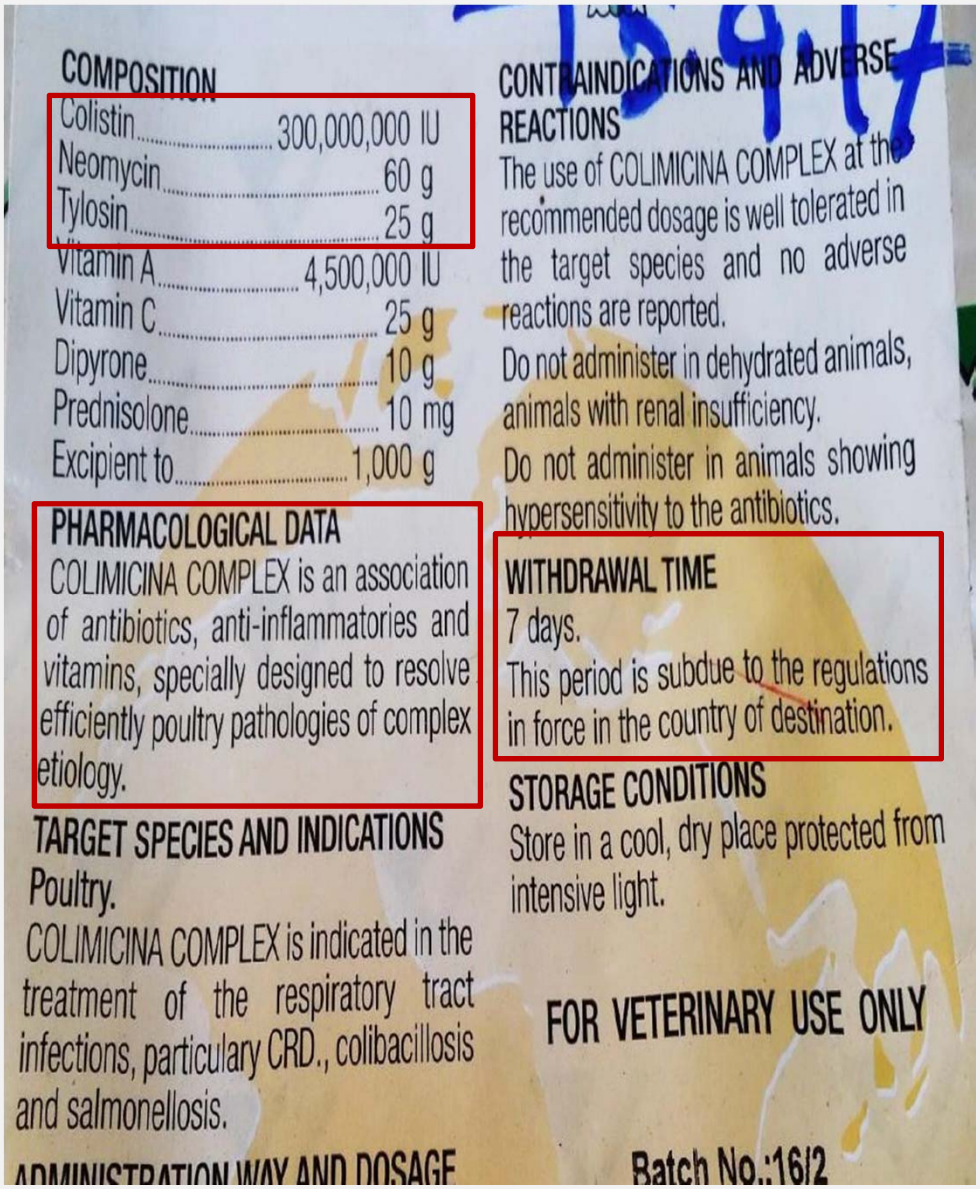
Retail shop

Supermarket

Pork stick shop

Residue

Education and awareness to veterinary drug & feed shops



Challenges

- Recommendation issued for importing of veterinary drugs, but no rules/procedures for vet drug registration
- Unofficial importation of vet drugs
- No prescription is needed for AMs, available over the counter
- No field (on farm) AMU data on volume and class, type of use, indication, and periods of treatments (withdrawal time?)
- No clear alternatives available for antimicrobials

LBVD-FAO response:
Antimicrobial Monitoring in Poultry, Myanmar

- LBVD and FAO now plan a new project
- It may be in Myanmar poultry sector
- It aims to
  - Ascertain Myanmar poultry sector antimicrobial use (AMU)
  - Establish AMR surveillance system
  - Propose feasible options for good practices
  - Improve antimicrobial stewardship in Myanmar's poultry production.

AMR does not recognize geographic or human/animal borders

AMR jeopardizes progress on health outcomes

THANK YOU FOR YOUR ATTENTION

For more information:

www.fao.org/antimicrobial-resistance,

www.oie.int/antimicrobial-resistance,

www.who.int/antimicrobial-resistance

ohn.kyaw@fao.org